

Name: _____

Spring Break: Exponent/ Radicals

Due: Monday, April 18th

Failure to show work will result in a LaSalle.

Simplify the radicals:

$\sqrt{16}$	
$\sqrt{36}$	
$\sqrt{121}$	
$\sqrt{4}$	
$\sqrt{144}$	
$\sqrt{196}$	
$\sqrt{64}$	
$\sqrt{9}$	
$\sqrt{81}$	
$\sqrt{25}$	
$\sqrt{1}$	
$\sqrt{169}$	
$\sqrt{100}$	
$\sqrt{49}$	
$\sqrt{x^2}$	
$\sqrt{x^3}$	

1.	$\sqrt{250x^5}$
2.	$\sqrt{100p}$
3.	$\sqrt{80k^4}$
4.	$\sqrt{75p^2}$
5.	$\sqrt{32x}$
6.	$\sqrt{72x^3}$
7.	$\sqrt{392x}$
8.	$\sqrt{x^5y}$

Adding & Subtracting	
1	$2\sqrt{5} - 3\sqrt{3} + 2\sqrt{3}$
2	$2\sqrt{3} + 3\sqrt{27} + 2\sqrt{8}$

3	$2\sqrt{12} + 3\sqrt{2} + 2\sqrt{18}$		
4	$3\sqrt{5} + 2\sqrt{5} - \sqrt{12}$		
5	$-3\sqrt{8} - 2\sqrt{18} + 2\sqrt{8}$		
6	$-\sqrt{5} + 2\sqrt{8} - 3\sqrt{8}$		
7	$-2\sqrt{2} + 3\sqrt{6} + 3\sqrt{6}$		
8	$-\sqrt{27} - 2\sqrt{3} - 2\sqrt{12}$		
Multiplying		Dividing	
9	$\sqrt{15}(\sqrt{3} + \sqrt{10})$	14	$\frac{\sqrt{16}}{4\sqrt{9}}$
10	$\sqrt{3}(\sqrt{5} + 5)$	15	$\frac{\sqrt{4}}{\sqrt{100}}$
11	$-2\sqrt{3}(\sqrt{6} + \sqrt{10})$	16	$\frac{\sqrt{9}}{\sqrt{4}}$
12	$5\sqrt{6}(-2\sqrt{3} + 4)$	17	$\frac{\sqrt{2}}{\sqrt{32}}$

RULE	ALGEBRA	EXAMPLE w/ NUMBERS	EXAMPLE w/ VARIABLES
Product Rule	$a^m \cdot a^n = \underline{\hspace{2cm}}$	a. $3^2 \cdot 3^3 = \underline{\hspace{2cm}}$	b. $(y^3)(y^5) = \underline{\hspace{2cm}}$
Quotient Rule	$\frac{a^m}{a^n} = \underline{\hspace{2cm}}$	c. $\frac{4^3}{4^2} = \underline{\hspace{2cm}}$	d. $\frac{k^5}{k} = \underline{\hspace{2cm}}$
Power Rule	$(a^m)^n = \underline{\hspace{2cm}}$	e. $(-2^2)^3 = \underline{\hspace{2cm}}$	f. $(y^3)^5 = \underline{\hspace{2cm}}$
	$(ab)^m = \underline{\hspace{2cm}}$	g. $(8 \cdot 9)^2 = \underline{\hspace{2cm}}$	h. $(xy)^5 = \underline{\hspace{2cm}}$
	$\left(\frac{a}{b}\right)^m = \underline{\hspace{2cm}}$	i. $\left(\frac{2}{3}\right)^2 = \underline{\hspace{2cm}}$	j. $\left(\frac{x^2}{y}\right)^2 = \underline{\hspace{2cm}}$
Zero Exponents	$a^0 = \underline{\hspace{2cm}}$	k. $4^0 = \underline{\hspace{2cm}}$	l. $x^0 = \underline{\hspace{2cm}}$
Negative Exponents	$a^{-n} = \underline{\hspace{2cm}}$	m. $3^{-2} = \underline{\hspace{2cm}}$	n. $r^{-2} = \underline{\hspace{2cm}}$
	$\frac{1}{a^{-n}} = \underline{\hspace{2cm}}$	o. $\frac{1}{2^{-3}} = \underline{\hspace{2cm}}$	p. $\frac{1}{n^{-5}} = \underline{\hspace{2cm}}$
	$\left(\frac{a}{b}\right)^{-m} = \underline{\hspace{2cm}}$	q. $\left(\frac{2}{3}\right)^{-2} = \underline{\hspace{2cm}}$	r. $\left(\frac{x^2}{y}\right)^{-3} = \underline{\hspace{2cm}}$

1. Simplify: $\frac{5y^2x^0}{3(xy^2)^0}$	2. Simplify: $\frac{9x^0y^3}{3y^0}$
3. Simplify: $3x^2x^04y^5y^3$	4. Simplify: $-5a^32b^9a^0a^6$
5. Simplify: $\frac{12x^3y^9z^2}{46x^5y^8z^{10}}$	6. Simplify: $\frac{18g^2y^2c^5}{2g^4y^3c^2}$
7. Simplify: $\frac{4x^2y^9x^4}{8y^6y^3x^0}$	8. Simplify: $\frac{9m^5p^6p^2}{27mp^0m^2}$

Need help?

<https://www.khanacademy.org/math/algebra-basics/core-algebra-foundations/square-roots-for-college/v/more-simplifying-radical-expressions>